Amendments to the Abstract:

Please replace the Abstract on page 36 with the following rewritten paragraph:

<u>A METHOD OF DETERMINING SHAPE DATA</u>

ABSTRACT

A method to determine the shape data of a complex curve surface using reference templates from a copy of the workpiece before it was used and the undamaged portion of the used workpiece so that the damaged portion of the workpiece can be reconstructed. The reference template is scanned in layers, including the portion corresponding to that which has been damaged in the workpiece, as well as adjacent undamaged portions of the used workpiece. Offsets of the reference template and workpiece are generated, based on corresponding portions of the reference template and the used workpiece. A new set of offsets of the damaged portion of the workpiece is then calculated. This calculated set of offsets is then used to calculate further profiles until a complete profile of the damaged portion has been predicted.

A reference template is used to help in the reconstruction of a damaged workpiece, such as a turbine blade. The reference template is a copy of the workpiece from before it was used. The reference template is scanned in layers, including the portion corresponding to that which has been damaged in the workpiece, as well as adjacent undamaged portions. The adjacent undamaged portions of the workpiece are also scanned as layers. Profiles of the layers of the reference template and workpiece are generated, based on the scans. Sets of offsets are then determined based on corresponding points within adjacent scanned layers in the undamaged portion of the workpiece and the corresponding portion of the reference template and also within the portion of the reference template corresponding to the damaged portion of the workpiece. A new set of offsets is then calculated between the undamaged and damaged portions of the workpiece, based on these various sets of offsets, to predict a profile of a layer of the damaged

portion. This calculated set of offsets is then used to calculate further profiles until a complete profile of the damaged portion has been predicted.

FIG. 12